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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/555,714

07/27/2006

Jorg Kowalczyk

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EXAMINER

BLAND, LAYLA D

ART UNIT

PAPER NUMBER

1623

MAIL DATE

DELIVERY MODE

11/18/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/555,714	<b>Applicant(s)</b> KOWALCZYK ET AL.	
	<b>Examiner</b> LAYLA BLAND	<b>Art Unit</b> 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-46 and 73-79 is/are pending in the application.
- 4a) Of the above claim(s) 14, 15, 19, 20, 39-42, 45, 46 and 76 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 16-18, 21-38, 43, 44, 73-75 and 77-79 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/4/2005, 1/7/2008, 5/14/2008</u> .                          | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Applicant's election of Group I, claims 1-44 and 73-79, and the species "maltose" in the reply filed on March 4, 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicant indicated that claims 1-13, 16-18, 21-38, 43-45, 73-75, and 77-79 read on the elected invention.

Claims 1-46 and 73-79 are pending. Claims 14, 15, 19, 20, 39-42, 45 and 46 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on March 4, 2008. Claims 1-13, 16-18, 21-38, 43-44, 73-75, and 77-79 are examined on the merits herein.

This application is a national stage entry of International Application No. PCT/EP04/04703, filed May 4, 2004, which claims priority to German Application No. 103 19 917.9, filed on May 5, 2003. The certified copy of the priority has been filed with the instant Application. It is noted that German Application No. 103 19 917.9 is in German; no translation of said German application into English has been provided.

### ***Information Disclosure Statement***

Of the IDS submitted November 4, 2005, the lined through references were not considered because a full citation was not given (only the author's name and part of the

title were provided). See MPEP 609: "Each publication listed in an information disclosure statement must be identified by publisher, author (if any), title, relevant pages of the publication, date, and place of publication." Of the IDS submitted January 7, 2008 and May 14, 2008, the Russian office actions were not considered because they are not in English and no concise explanation of the documents was provided.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13, 16-18, 21-38, 43-44, 73-75, and 77-79 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 23 (and dependent claims) recite the limitation "nanodispersed." It is unclear whether "nanodispersed" refers to a specific particle size. The specification does not define the term.

Claims 7, 31, and 32 include the limitations "preferably," which is a narrower statement of the broader limitation. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then

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narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 16-18, 21-38, 43-44, 73-75, and 77-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biella et al. (Journal of Catalysis, 206, 242-247, 2002, PTO-1449 submitted November 4, 2005) in view of Fuertes et al. (US 4,985,553, January 15, 1991, PTO-1449 submitted November 4, 2005) and Biella et al. (Catalysis Today 72 (2002) 43-49, PTO-1449 submitted November 4, 2005).

Biella et al. (Journal of Catalysis) teach the selective oxidation of glucose to gluconic acid using gold on carbon catalyst [see abstract]. The particle size was 2-5 nm and the support had a final gold loading of about 1 wt% [page 243, 2.2.1]. Reactant/metal ratio was about 1000. Experiments were done by bubbling dioxygen through an aqueous slurry, at atmospheric pressure (1 bar), at pH 7, 8, or 9.5, at 323 K

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(about 50°C). When the pH was not controlled, experiments were done at 30 kPa (3 bar) and 363 K (90°C) [page 243, 2.3]. Very high (>99%) selectivity was obtained [page 246, 3.3]. The gold catalyst has improved activity and selectivity over palladium or platinum catalysts [page 242, Introduction].

Biella et al. do not teach oxidation of oligosaccharides, and do not teach metal oxide solid support.

Fuertes et al. teach a process for selective oxidation of di-, tri-, oligo-, and polysaccharides using an oxygen-containing gas in the presence of a noble metal based catalyst such as palladium, platinum, rhodium, or osmium on solid support [see abstract]. Disaccharides such as lactose are contemplated [column 2, lines 1-16]. Solid supports including alumina and titanium oxide are taught [claim 16]. The quantity of catalyst used should be between 0.005 and 1 wt% with respect to the polysaccharides [column 3, lines 58-63]. The reaction temperature should be between 20°C and 90°C [column 3, lines 65-68]. The pH should be between 7.5 and 11.0, preferably between 8.0 and 10.0 [column 4, lines 13-15].

Biella et al. teach application of gold catalysts to selective liquid phase oxidation, using SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, or C as solid support [page 45, Table 1]. Oxidation of glucose is taught [page 38, 3.5].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to oxidize maltose using the method of Biella et al. (Journal of Catalysis), and to modify that method to include solid supports such as Al<sub>2</sub>O<sub>3</sub> or TiO<sub>2</sub> in place of carbon. The Supreme Court in KSR reaffirmed the familiar framework for

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determining obviousness as set forth in *Graham v. John Deere Co.* (383 U.S. 1, 148 USPQ 459 (1966)), but stated that the Federal Circuit had erred by applying the teaching-suggestion-motivation (TSM) test in an overly rigid and formalistic way. *KSR*, 82 USPQ2d 1385. Exemplary rationales that may support a conclusion of obviousness include:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;
- Use of known technique to improve similar devices (methods, or products) in the same way;  
Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- “Obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success.
- Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;
- Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

In this case, the skilled artisan could arrive at the claimed invention by simple substitution of one known element for another. The prior art teaches a method which differs from the claimed method by the substitution of some components (oxidation of glucose, gold on carbon support) with other components (oxidation of maltose, gold on metal hydroxide support). Gold catalysts on metal hydroxide supports, used in oxidation reactions, are known in the art as an alternative to gold on carbon. Gold catalyst is known in the art as an attractive alternative to platinum or palladium catalyst, and has been used to oxidize glucose. Oxidation of maltose, which is a disaccharide formed from two glucose molecules, using platinum or palladium catalyst is known in

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the art. Thus, the skilled artisan could have substituted maltose for glucose, or metal hydroxide solid support for carbon solid support, and would have predicted similar results, because these are all known in the art as alternatives.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAYLA BLAND whose telephone number is (571)272-9572. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anna Jiang can be reached on (571) 272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Layla Bland/  
Examiner, Art Unit 1623

/Shaojia Anna Jiang/  
Supervisory Patent Examiner  
Art Unit 1623